CURRENT LITERATURE

BOOK REVIEWS

New Jersey pine barrens

The coastal plain of New Jersey has long been famous for its unique vegetation. It probably shows the nearest approach to primeval forest in close proximity to a great center of population to be found anywhere. As a center of distribution of one group of species, and the area where two other groups, the one from the south and the other from the north, reach the limits of their range, it is equally noteworthy. These features, among others, have made its flora the subject of many papers, but in the present volume HARSHBERGER[1] has brought together within the pages of a single volume a vast collection of facts, both new and old, that will go far toward making its vegetation the most carefully studied and the best known upon the continent.

The treatment of the vegetation is essentially ecological in the broadest sense, some phases of plant study being included that do not often come within that category. As examples we may cite the descriptions of cranberry culture, of the collecting of drug plants, and of the turpentine industry. It is, however, principally in the analysis of the various plant communities that the ecological value of the work lies. Nine great natural divisions of the vegetation are recognized, of which the flat pine barren, with its forest of *Pinus rigida*, supplemented by a few *P. echinata* and several species of dwarf oaks, is the most unique and interesting. Aside from the pines and oaks, various Ericaceae are conspicuous, comprising species of *Vaccinium*, *Gaylussacia*, and *Kalmia*.

Pinus rigida receives careful study, not only in its place as the dominant tree in the characteristic association, but also in its individual development, its various growth forms being illustrated in not less than 37 well drawn sketches. In general, it is a small tree, little over 30 feet in height, but in addition to the tree forms various gradations to bush shapes and elfin-wood are distinguished.

In addition to the studies of the various plant associations, analysis of the vegetation according to JACCARD'S statistical method and RAUNKIAER'S life forms are presented. The biological spectrum shows the flora of the pine barrens to be particularly rich in hemicryptophytes and helophytes. In another chapter the phytophenology of the vegetation is presented, the time of flowering and fruiting being given for not less than 548 species. Not less

[1] HARSHBERGER, JOHN W., The vegetation of the New Jersey pine barrens: An ecological investigation. 8vo. pp. xi+329. *figs. 284* and *map*. Philadelphia: Christopher Sower Co. 1916. $5.00.

interesting are detailed stem and root studies of individual species illustrated by 50 drawings, while the further ecological anatomy of the pine barren plants is considered in two chapters devoted respectively to leaf forms and leaf structure. The latter is illustrated by over 50 drawings of cross-sections studied microscopically.

These notes all go to show that the volume is full of innumerable data regarding the plant life of the region under consideration, making it one of the most comprehensive and complete ecological studies yet undertaken. These details are well organized and splendidly illustrated by numerous drawings, photographs, and maps. It forms an invaluable record of a more than usually interesting region, while the publishers have cooperated with the author in presenting it in an attractive volume.—GEO. D. FULLER.

Algae

WEST'S *British freshwater algae*, which was published in 1904, supplied a long felt want. Its convenient taxonomic keys, together with notes on habitats, life histories, and biological conditions, all written with the authority which comes only from first hand knowledge of the subject, made the book so indispensable that the edition was soon exhausted. After delays, occasioned partly by the author's illness and partly by the great war, the first volume[2] of a more extensive work has made its appearance. This volume is also the first of a still more extensive series which will appear under the general title of *Cambridge Botanical Handbooks*, now being edited by Professors SEWARD and TANSLEY. A volume on lichens by Miss LORRAIN SMITH, one on fungi by Dr. HELEN GWYNNE-VAUGHAN, and one on Gnetales by the late Professor PEARSON, are in an advanced stage of preparation.

The present volume on algae deals with the Myxophyceae (Cyanophyceae), Peridineae, Bacillariaceae, and Chlorophyceae, both fresh water and marine. No keys are given, a taxonomic account, excluding the diatoms and desmids, being reserved for the second volume. The treatment, however, follows the taxonomic sequence, the orders and sub-orders, families and sub-families appearing in succession, usually beginning with a diagnosis, followed by descriptions of habitats, biological conditions, structures, and life histories, and ending with a discussion of affinities. Each of the larger divisions closes with a list of the literature cited.

We are glad to see the Cyanophyceae included as the lowest of the algae. It will be remembered that OLTMANNS excluded this group from his book on the morphology and biology of algae. WEST does not agree with HEGNER, OLIVE, GARDNER, KOHL, PHILLIPS, and others who regard the central body as a nucleus. To us his arguments against the nuclear theory do not seem convincing, especially since the Cyanophyceae are so low in the scale of living organisms.

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[2] WEST, G. S., Algae. Vol. I. 8vo. pp. viii+475. *figs. 271*. Cambridge University Press. 1916. *25s.*